

Claims

[c1] What is claimed is:

1.A valve assembly to be used in an air induction system that induces airflow into the intake of an internal combustion engine, wherein the induction system includes a compressor presenting an air supply opening and a spaced pressurized air exhaust opening communicating with the engine intake, the assembly comprising:
a valve fluidly connectable to the supply opening to control air supply thereto; and
a valve control mechanism including an air pressure sensor adapted to sense air pressure downstream from the air exhaust opening,
said valve control mechanism being operable to cause the valve to vary the air supply depending on the air pressure sensed.

[c2] 2.The assembly as claimed in claim 1,
said valve including a valve body shiftable into and out of an open position wherein the air supply to the supply opening is substantially unrestricted by the valve body.

[c3] 3.The assembly as claimed in claim 2,
said valve body being yieldably biased into the open po-

sition.

- [c4] 4.The assembly as claimed in claim 3,
said air pressure sensor being connectable to the engine
intake to cause the valve to vary the air supply depend-
ing upon air pressure in the intake.
- [c5] 5.The assembly as claimed in claim 4,
said control mechanism being operable to cause the
valve body to shift out of the open position to progres-
sively restrict the air supply to the supply opening when
said condition is a surge condition wherein air pressure
in the intake is less than a reference pressure.
- [c6] 6.The assembly as claimed in claim 4,
said control mechanism being operable to cause the
valve body to shift out of the open position to progres-
sively restrict the air supply to the supply opening when
said condition is an over-boost condition wherein air
pressure in the intake is greater than a reference pres-
sure.
- [c7] 7.The assembly as claimed in claim 1,
said air pressure sensor comprising a reference line.
- [c8] 8.A valve assembly to be used in an air induction system
that induces airflow into the intake of an internal com-
bustion engine, wherein the induction system includes a

compressor presenting an air supply opening and a spaced pressurized air discharge opening communicating with the engine intake, the assembly comprising:
a housing presenting an airflow passageway extending between an inlet port and an outlet port, wherein the outlet port is fluidly connectable to the air supply opening of the compressor;
a valve body shiftably disposed within the housing to vary airflow through the passageway; and
a collapsible chamber operable to shift the valve body as the chamber collapses and expands.

[c9] 9.The valve assembly as claimed in claim 8,
said housing presenting a pair of generally opposed valve seats spaced along the passageway,
said valve body being shiftably disposed between the seats so that shifting of the valve body toward either of the seats restricts airflow through the passageway.

[c10] 10.The valve assembly as claimed in claim 9,
said housing presenting a radially enlarged section extending between the seats,
said passageway presenting a first cross-sectional area at each of the seats and a relatively greater, second cross-sectional area at the enlarged section.

[c11] 11.The valve assembly as claimed in claim 10,

said valve body being generally disc-shaped and presenting a body cross-sectional area that is greater than the first cross-sectional area of the passageway but less than the second cross-sectional area of the passageway.

[c12] 12.The valve assembly as claimed in claim 11, said housing being generally cylindrical in shape, said valve body and said passageway each presenting a circular cross-section, said valve body being concentric with the passageway and shiftable linearly along the length of the passageway.

[c13] 13.The valve assembly as claimed in claim 8; and a flexible diaphragm cooperating with the valve body to define the chamber.

[c14] 14.The valve assembly as claimed in claim 13, said body being hollow, said diaphragm being located within the valve body, wherein the valve body and diaphragm cooperatively define an additional collapsible chamber pneumatically isolated from the first-mentioned chamber and cooperating therewith to effect shifting of the valve body.

[c15] 15.The valve assembly as claimed in claim 14, each of the chambers including a reference opening for

communicating the chamber with a reference air pressure.